LETTER TO THE EDITOR

Dermatoses caused by face mask wearing during the COVID-19 pandemic

Editor

We present 6 patients with different dermatoses caused by face mask wearing during the COVID-19 pandemic. Physical examination revealed lesions only under masks.

Two 20 years old females presented to our clinic with the pustules and papules on the face area. Due to the COVID-19 pandemic, the patients began to use neoprene mask with daily change. The first papules and pustules appeared in the mask area about two weeks of mask using. The diagnosis of mask induced acne ('maskne') was made (Fig. 1a-c).

Two 25 and 23 years old patients presented with irregular pink-yellow patches with sharp borders and small serous crusts. No concomitant disorders, professional harm and bad habits (smoking, alcohol or drugs) were noted. The lesions had a week history after using mask during 9 months. The patients used neoprene masks changed only once a week. Clinical changes were consistent with the diagnosis of impetigo (Fig. 2a,b).

A 54-year-old woman had rosacea with central facial erythema with papulopustular lesions during three years. Minocycline and ivermectin (IVM) 1% cream treatment provided remission during 1.5 years. When the COVID-19 pandemic began, the patient used surgical mask that she changed every four hours. Prolonged use of masks provoked exacerbation of the rosacea. Over a 3-week treatment with IVM 1% cream, a

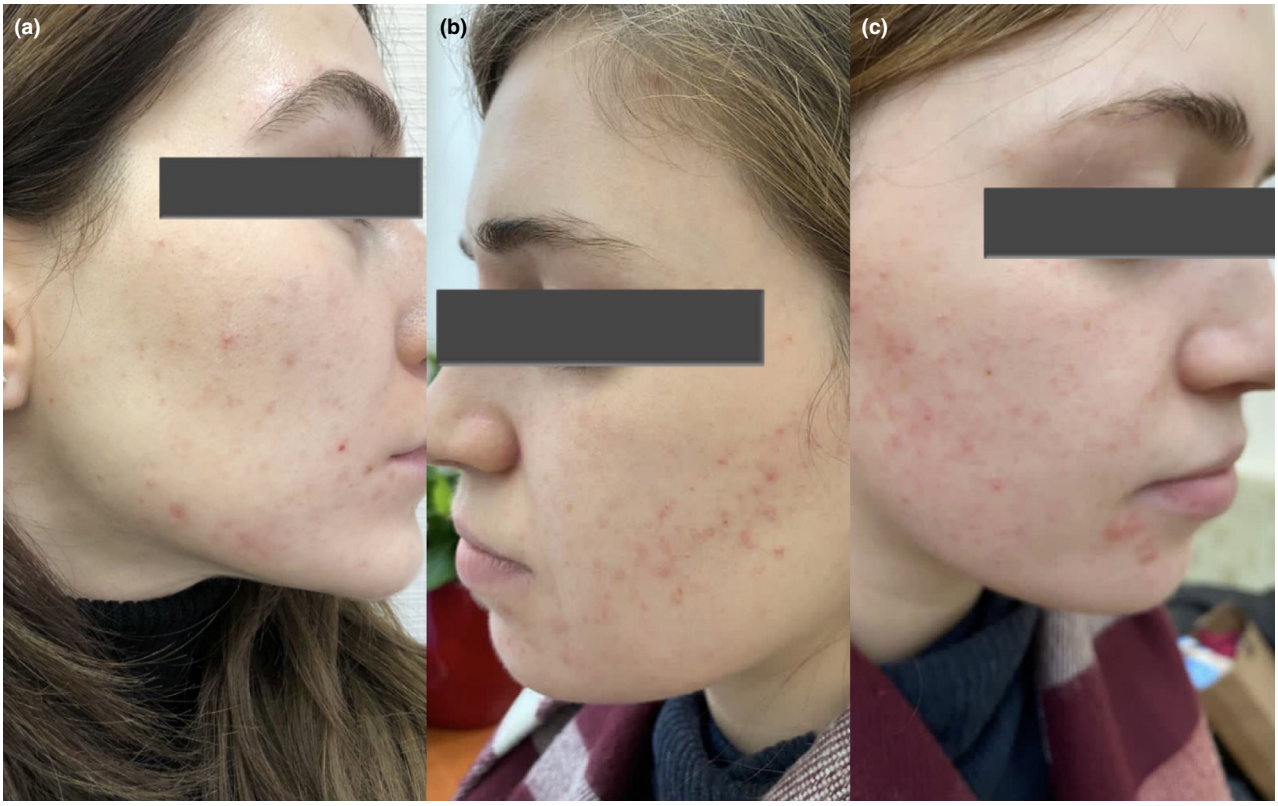

Figure 1 (a) Patient 1: A 20-year-old female with the pustules and papules on the chin, cheeks and nasal bridge; (b,c) Patient 2: A 20-year-old female with the pustules and papules on the chin, cheeks and nasal bridge.

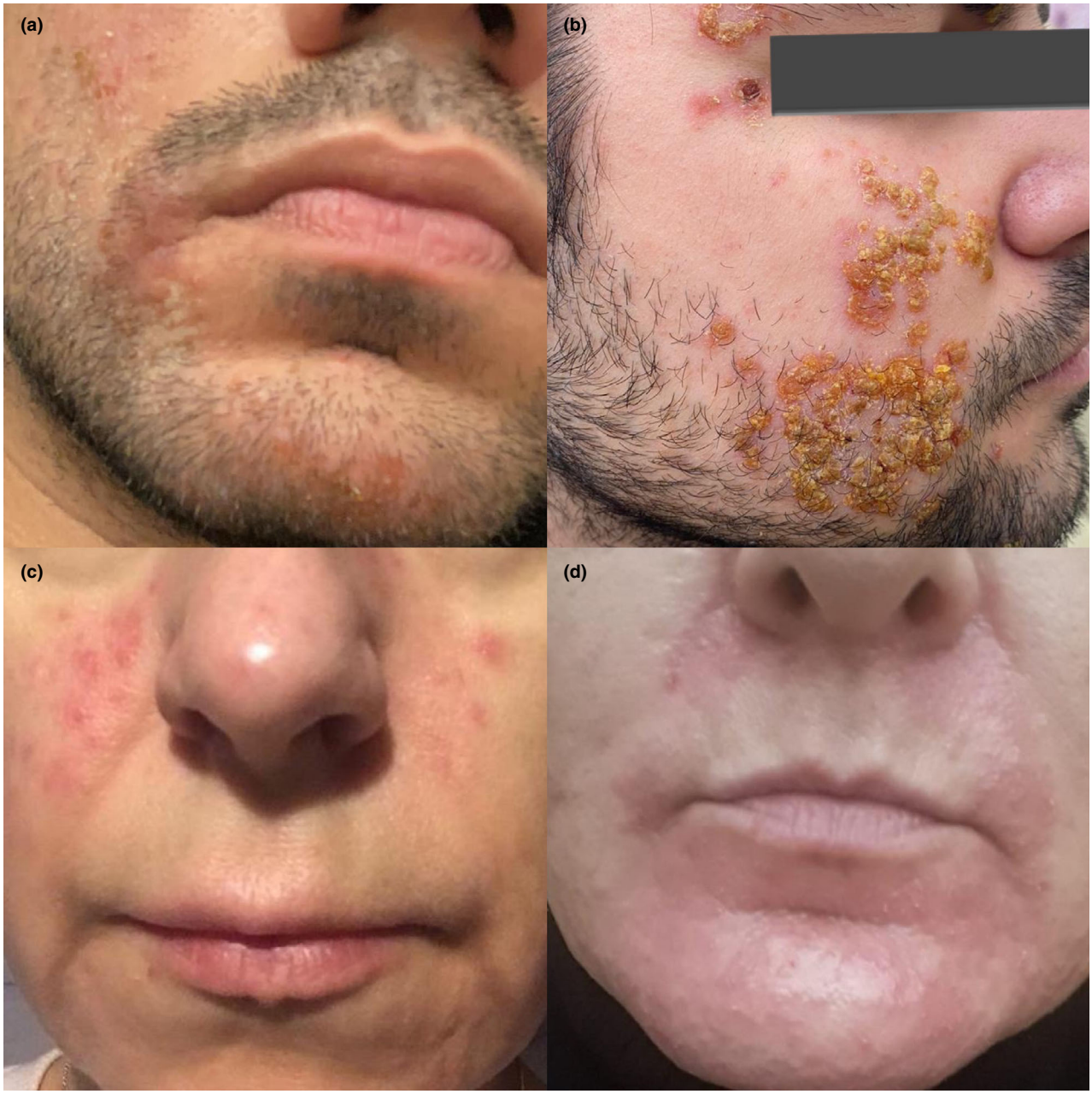

Figure 2 (a) Patient 3. A 25-year-old male with irregular pink-yellow patches with sharp borders; (b) Patient 4. A 23-year-old male with irregular pink-yellow patches with sharp borders and multiple small serous crusts; (c) Patient 5. A 54-year-old female with central facial erythema and papulopustular lesions; (d) Patient 6. A 50-year-old female with pink erythema and erythematous-grouped papules on the chin, cheeks and nasal bridge.

marked clinical improvement was observed. During the next 4 months, the patient did not use mask, lived in a village, ordered groceries via internet and had a complete remission of rosacea. After quarantine, the patient moved to the city. The rosacea recurred with central facial erythema with papulopustular lesions under the mask (Fig. 2c).

A 50-year-old woman presented to the Dermatology Clinic with a rash around the mouth and the nose and complaints of burning. Physical examination revealed pink erythema with erythematous-grouped papules. The vermillion borders of the lips were spared. Clinical changes were consistent with the diagnosis of perioral dermatitis (Fig. 2d). The rashes were associated with

the beginning of mask wearing. First foci of erythema appeared a month later. The patient used surgical masks. She had chronic gastritis in remission.

Since the COVID-19 (SARS-COV-2) pandemic began, mask wearing like personal protective equipment (PPE) was advocated to prevent droplet dispersal during sneezing, coughing and talking.[1]

Using masks as a part of PPE has become obligatory for not only healthcare professionals but every person.[1,2] As of yet, several facial dermatoses such as acne, rosacea, seborrheic dermatitis, perioral dermatitis, impetigo as a secondary reaction to prolonged use of PPE have been sharply increased in the dermatologist practice.[3–5]

Due to the mask regimen, a new term 'maskne' was introduced for acne caused by mask wearing.[2,6]

Prolonged mask use causes exacerbation of not only pre-existing facial dermatoses (acne, rosacea or perioral dermatitis) but also increases the incidence of acne mechanica, occupational dermatitis (both irritant contact dermatitis and allergic contact dermatitis) caused by the mask material and prolonged contact with straps. Increased warmth and dampness of the face skin due to expired air and sweating caused occlusive effect hampering the skin hydration and irritating pilosebaceous glands ducts with changes in skin microflora.[5,6] A lengthy daily non-changed mask wearing leads to *S. aureus* activation and causes an infection, for instance, impetigo.[7]

Mask-related lesions involve chin, cheeks and nasal bridge. These areas could be potentially a focus for preventative measures.[8] To avoid mask-associated facial dermatoses, dermatologists counsel patients with the help of mass media and individually regarding the proper skin hygiene: to avoid over cleansing, to use mild cleansers close to skin's natural pH (pH 5) and to add non-comedogenic moisturizing creams.[6]

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Conflict of interest

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References

1 World Health Organization. Timeline of WHO's response to COVID-19. *World Health Organ* 2020; **1**: 1–27. https://www.who.int/emergencies/diseases/novel-coronavirus-2019/interactive-timeline

2 Hayat W, Malik L, Mukhtar R, Khan M, Saeed A, Rashid T. MASKNE'(mask induced acne) in health care professionals of tertiary care hospitals of Lahore during COVID-19 Pandemic. *Pakistan Postgrad Med J* 2020; **31**: 61–65.

3 Giacalone S, Minuti A, Spigariolo CB, Passoni E, Nazzaro G. Facial dermatoses in the general population due to wearing of personal protective masks during the COVID-19 pandemic: first observations after lockdown. *Clin Exp Dermatol* 2021; **46**: 368–369.

4 Singh M, Pawar M, Bothra A, Maheshwari A, Dubey V, Tiwari A. Personal protective equipment induced facial dermatoses in healthcare workers managing Coronavirus disease 2019. *J Eur Acad Dermatol Venereol* 2020; **34**: e378–e380.

5 Qian YU, Li W, Yang L. A case of goggle-mask-related impetigo at the time of the COVID-19 pandemic. Running title: Goggle-mask-related impetigo. *Dermatol Ther* 2020; **33**: e13636.

6 Gomolin TA, Cline A, Russo M. Maskne: exacerbation or eruption of acne during the COVID-19 pandemic. *SKIN J Cutaneous Med* 2020; **4**: 438–439.

7 Han C, Shi J, Chen Y, Zhang Z. Increased flare of acne caused by long-time mask wearing during COVID-19 pandemic among general population. *Dermatol Ther* 2020; **29**: e13704.

8 Yu J, Chen JK, Mowad CM *et al.* Occupational dermatitis to facial personal protective equipment in healthcare workers: a systematic review. *J Am Acad Dermatol* 2021; **84**: 486–494.

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